District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301W. Grand Avenue, Artesia NM 88201
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-101
Revised March 17, 1999

Submit to appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

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DEC 16 2003
OCD-ARTESIA

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
CHI OPERATING, INC. P.O. Box 1799 Midland, Texas 79702	004378
	[3] API Number 30-015-33181

[3] Property Code	[5] Property Name	[6] Well No.
	MERLAND	2

[7] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Lot C	30	22	27		990	NORTH	1980	WEST	EDDY

[8] Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[9] Proposed Pool 1	[10] Proposed Pool 2
Carlsbad; Morrow, South	

[11] Work Type Code	[12] Well Type Code	[13] Cable/Rotary	[14] Lease Type Code	[15] Ground Level Elevation
NW	G	R	P	3174'
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
	12000	Morrow		2/01/03

[21] Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17½"	13 3/8"	48.5# J-55	±370'	±400	SURFACE/Circ
12¼"	9 5/8"	36# J-55	±5260'	±1000	SURFACE/Circ
8¾"	7" (CONTINGENCY)	26# N-80	±10,400'	±400	±8000'
6¼" (If 7" is set)	4 ½" Liner	11.6# N-80	12,000'	As deemed necessary	500'above productive
7 7/8"(If 7" is not set)	5 ½"	20/17# N-80	12,000'	As deemed necessary	zones

[22] Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive zone. Describe the blowout prevention program, if any. Use additional sheets if necessary.

Drill surface hole to 370', set csg & cement to surface. WOC-18 hrs. NU annular, tst & drill intermediate to base of Delaware ±5360'. Cement to surface. NUBOP & test5000# while waiting 18 hrs on cement. Drill 8¾" hole to ±9700'. If necessary, set 7" psi string & cement. If 7" is set, drill out with 6¼" bit to TD. Log/evaluate, set liner & cement. If not, continue with 7 7/8" hole to TD. Log/evaluate, set csg & cement.

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: John W. Wolf

Printed name: John W. Wolf

Date: 12/12/03

Phone: 915-685-5001

OIL CONSERVATION DIVISION

Approved by: Lynn W. Green

Title: District Supervisor

Approval Date: JAN 15 2004

Expiration Date: JAN 15 2005

Conditions of Approval:

Attached ☐

District I
1625 N. French Dr. Hobbs, NM 88240

District II
811 South First, Artesia, NM 88210

District III
1000 Rio Brazos Rd., Aztec NM 87410

District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, N M 87505

Form C-102
Revised March 17, 1999
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	MERLAND	2
OGRID No.	Operation Name	Elevation
004378	CHI OPERATING, INC.	3174

Surface Location

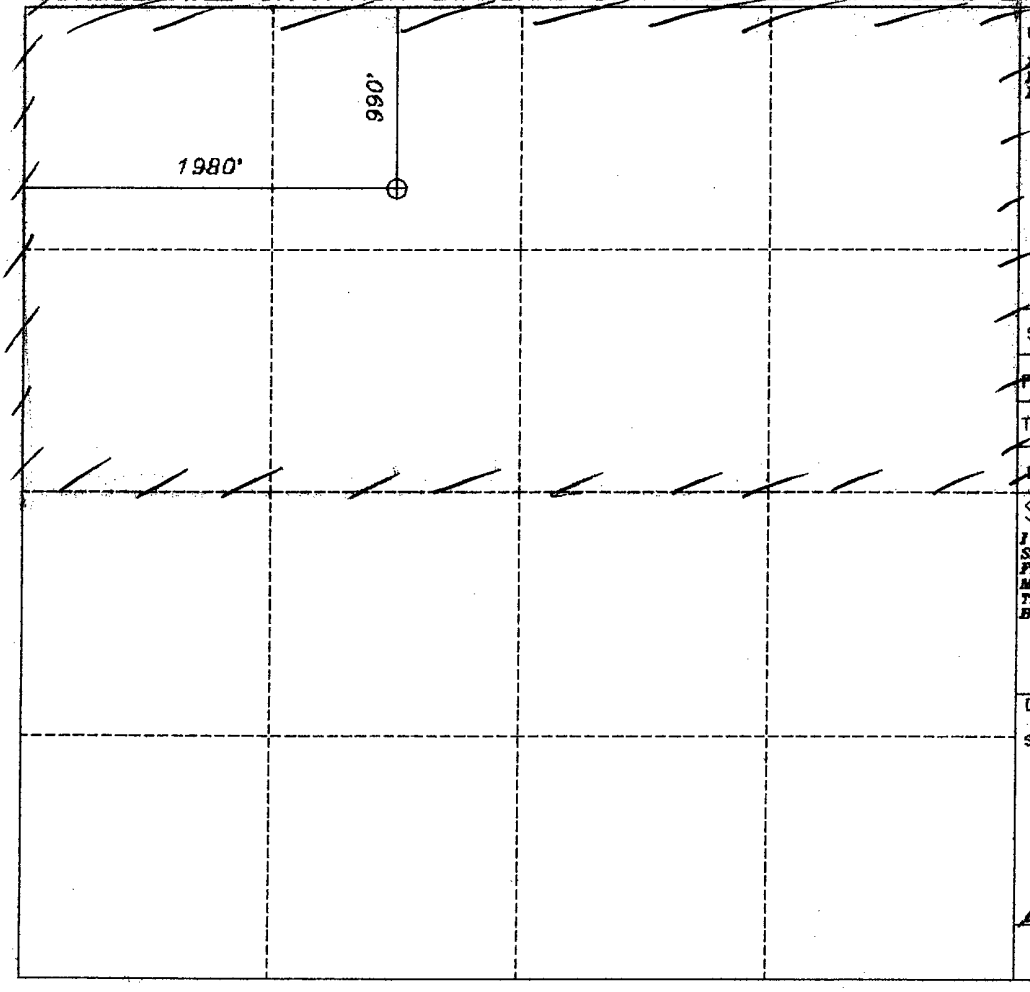
UL or Lot No.	Section	Township	Range	Lot Idn.	Feet from the	North/South line	Feet from the	East/West line	County
C	30	22-S	27-E		990	NORTH	1980	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or Lot No.	Section	Township	Range	Lot Idn.	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320 N/2			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTEREST HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I HEREBY CERTIFY THAT THE INFORMATION HEREIN IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Signature: John W. Wolf

Printed Name: JOHN W. WOLF

Title: Engr.

Date: 12/11/03

SURVEYOR CERTIFICATION

I HEREBY CERTIFY THAT THE WELL LOCATION SHOWN ON THIS PLAT WAS PLOTTED FROM FIELD NOTES OF ACTUAL SURVEYS MADE BY ME OR UNDER MY SUPERVISION, AND THAT THE SAME IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DECEMBER 4, 2003
Date of Survey

Signature and Seal of Professional Surveyor

DANNY EDDY
NEW MEXICO
5412
REGISTERED PROFESSIONAL ENGINEER
NMPE & PS #5412

Certificate Number

CHI OPERATING, INC
HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN
FOR DRILLING/COMPLETING/WORKOVER/FACILITY
WITH THE EXPECTATION OF H2S IN EXCESS OF 100 PPM

RECEIVED
JAN 0 8 2004
OCD-ARTESIA

WELL/FACILITY IN QUESTION
MERLAND #2
NEW WELL DRILL
SECTION 30-T22S-R27E
EDDY COUNTY, N.M.

This well/facility is not expected to have H2S, but due to the sensitive location,
The following is submitted as requested

TABLE OF CONTENTS

GENERAL H2S EMERGENCY ACTIONS:

In the event of an H2S emergency, the following plan will be initiated.

1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".

2) If for any reason a person must enter the hazardous area, they must wear a SCBA (Self contained breathing apparatus)

3) Always use the "buddy system"

4) Isolate the well/problem if possible

5) Account for all personnel

6) Display the proper colors warning all unsuspecting personnel of the danger at hand.

7) Contact the Company personnel as soon as possible if not at the location. (use the enclosed call list as instructed)

At this point the company representative will evaluate the situation and co-ordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1) All personnel will don the self-contained breathing apparatus.

2) Remove all personnel to the "safe area". (always use the "buddy system"

3) Contact company personnel if not on location.

4) Set in motion the steps to protect and or remove the general public to an upwind "safe area". Maintain strict security & safety procedures while dealing with the source.

5) No entry to any unauthorized personnel.

6) Notify the appropriate agencies: City Police-City street(s)
State Police-State Rd
Count Sheriff-County Rd.
(will assist in general public evacuation/safety while maintaining roadblocks)

7) Call the NMOCD

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in arms way he will take the necessary steps to

EMERGENCY CALL LIST: (Start and continue until ONE of these people have been reached)

	OFFICE	MOBILE	HOME
Chi Operating, Inc.	432-685-5001		
Sonny Mann	505-365-2338	432-694-7062	505-365-2722
John Wolf	432-685-5001	432-634-7061	432-682-4905
Bill Bergman	432-685-5001	432-557-8773	432-689-4011

EMERGENCY RESPONSE NUMBERS: Eddy County, New Mexico

State Police	505-748-9718
Eddy County Sheriff	505-746-2701
Emergency Medical Service (Ambulance)	911 or 505-746-2701
Eddy County Emergency Management (Harry Burgess)	505-887-9511
State Emergency Response Center (SERC)	505-476-9620
Artesia Police Department	505-746-5001
Artesia Fire Department	505-746-5001
Carlsbad Police Department	505-885-2111
Carlsbad Fire Department	505-885-3125
Loco Hills Fire Department	505-677-2349
(NMOCD) New Mexico Oil Conservation Division,	
District I (Lea, Roosevelt, Chavez, Curry)	505-393-6161
District II (Eddy, Chavez)	505-748-1283

American Safety	505-746-1096
Indian Fire & Safety	800-530-8693
Callaway Safety	505-392-2973
BJ Services	502-746-3146

PROTECTION OF THE GENERAL PUBLIC/ROE:

In the event greater than 100 ppm H2S is present, the ROE (Radius Of Exposure) calculations will be done to determine if the following is warranted:

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road which the general public may travel)
- 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

$X = [(1.589)(\text{concentration})(Q)]$ (0.6258)

Calculation for the 500 ppm ROE:

$X = [(0.4546)(\text{concentration})(Q)]$ (.06258)

EXAMPLE: If a well/facility has been determined to have 150 ppm H2S in the gas mixture and the well/facility is producing at a gas rate of 100 MCFPD then:

100 PPM $X=[(1.589)(150)(200)]$ (0.6258)
$X= 846'$ 7

500 PPM $X=[(.4546)(150)(200)]$ (0.6258)
$X= 37'$ 15'

(These calculations will be forwarded to the appropriate District NMOCD office when applicable)

PUBLIC EVACUATION PLAN:
(When the supervisor has determined that the General Public will be involved, the following plan will be implemented)

1) Notification of the emergency response agencies of the hazardous condition and Implement evacuation procedures.

2) A trained person in H2S safety, shall monitor with detection equipment the H2S Concentration, wind and area of exposure (ROE). This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. **(All monitoring equipment shall be UL approved, for use in class I groups A,B,C, & D, Division I, hazardous locations. All monitors will have a minimum capability of measuring H2S, oxygen, and flammable values.)**

3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.

4) The company supervising personnel shall stay in communication with all agencies through out the duration of the situation and inform such agencies when the situation has been contained and the effected area(s) is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLABLE CONDITION:
The decision to ignite a well should be a last resort and one if not both of the following pertain.

1) Human life and/or property are in danger.

2) There is no hope of bring the situation under control with the prevailing conditions at the site.

INSTRUCTIONS FOR IGNITION:

1) Two people are required. They must be equipped with positive pressure; self contained breathing apparatus and a "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2) One of the people will be a qualified safety person who will test the atmosphere for H2S, Oxygen, & LFL. The other person will be the company supervisor; he is responsible for igniting the well.

3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun shall be used, with a ±500' range to ignite the gas.

4) Prior to ignition, make a final check for combustible gases.

5) Following ignition, continue with the emergency actions & procedures as before.

REQUIRED EMERGENCY EQUIPMENT:

1) Breathing Apparatus:

- Rescue Packs (SCBA) - 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.

- Work/Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.

- Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

2) Signage & Flagging:

- One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.

- A Colored Condition flag will be on display, reflecting the condition at the site at that time.

3) Briefing Area: Two, perpendicular areas will be designated by signs and readily accessible.

4) Wind Socks: Two windsocks will be placed in strategic locations, visible from all angles.

5) H2S Detectors and Alarm: The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The 3 sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)

- Rig Floor
- Bell Nipple
- End of Flow line or where well bore fluid are being discharged.

6) Auxiliary Rescue Equipment:

- Stretcher
- Two OSHA full body harness
- 100' of 5/8" OSHA approved rope
- 1 – 20# Class ABC fire extinguisher
- Communication via cell phones on location and vehicles on location.

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA):

SCBA should be worn when any of the following are performed:

- Working near the top or on top of a tank.
- Disconnecting any line where H2S can reasonably be expected.
- Sampling air in the area to determine if toxic concentrations of H2S exist.
- Working in areas where over 10 ppm on H2S has been detected.
- At any time there is a doubt as the level of H2S in the area.

All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

Facial hair and standard eyeglasses are not allowed with SCBA.

Contact lenses are never allowed with SCBA.

Air quality shall continuously be checked during the entire operation.

After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTOMS OF HYDROGEN SULFIDE (H2S) POISONING:

Do not panic.

Remain calm & think.

Get on the breathing apparatus.

Remove the victim to the safe breathing area as quickly as possible. Upwind an uphill from source or cross wind to achieve upwind.

Notify emergency response personnel.

Provide artificial respiration and /or CPR, as necessary.

Remove all contaminated clothing to avoid further exposure.

A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

H2S TOXIC EFFECTS:

H2S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H2S is approximately 20% heavier than air (Sp.Gr=1.19 / Air=1) and color less. It forms an explosive mixture with air between 4.3% and 46.0%. By volume hydrogen sulfide (H2S) is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

Various Gases

Common Name	Chemical Abbrev.	Sp. Gr.	Threshold Limits	Hazardous Limits	Lethal Concentration
Hydrogen Sulfide	H2S	1.19	10 ppm 15 ppm	100 ppm/ hr	600 ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/ hr	300 ppm
Sulfur Dioxide	SO2	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL2	2.45	1 ppm	4 ppm / hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm / hr	1000 ppm
Carbon Dioxide	CO2	1.52	5000 ppm	5 %	10 %
Methane	CH4	0.55	90,000	Combustible @ 5%	N/A

1 Threshold limit – Concentrations at which it is believed that all workers may be repeatedly exposed, day after day without Adverse effects.
2 Hazardous limit – Concentration that may cause death
3 Lethal concentration – Concentration that will cause death with short-term exposure.
4 Threshold limit – 10 ppm – NIOSH guide to chemical hazards
5 Short-term threshold limit.

PHYSICAL EFFECTS OF HYDROGEN SULFIDE:

CONCENTRATIONS		PYSICAL EFFECTS
.001%	10 ppm	Obvious and unpleasant odor. Safe for 8hr exposure
.005%	50 ppm	Can cause some flu-like symptoms and can cause pneumonia
.01%	100 ppm	Kills the sense of smell in 3 –15 minutes. May irritate eyes and throat.
.02%	200 ppm	Kills the sense of smell rapidy. Severly irritates eyes and throat. Severe flu-like symptoms after 4 or more hours. May cause lung damage and/or death.
.06%	600 ppm	Loss of consciousness quickly, death will result in not rescued promptly.

Phone (915) 685-5001 *Chi Operating, Inc.* Fax (915) 687-2662
P.O. Box 1799
Midland, TX 79702

12/12/03

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1301 W. Grand Avenue
Artesia, New Mexico 88201

Re: OCD Rule 118
Merland #2
Sec 30-T22S-R27E
Eddy County, NM

Mr. Bryan Arrant;

As per your request, this drill site, to the best of my knowledge will not have H2S > 100 ppm, thus rule 118 does not apply.

Respectfully;

John W. Wolf

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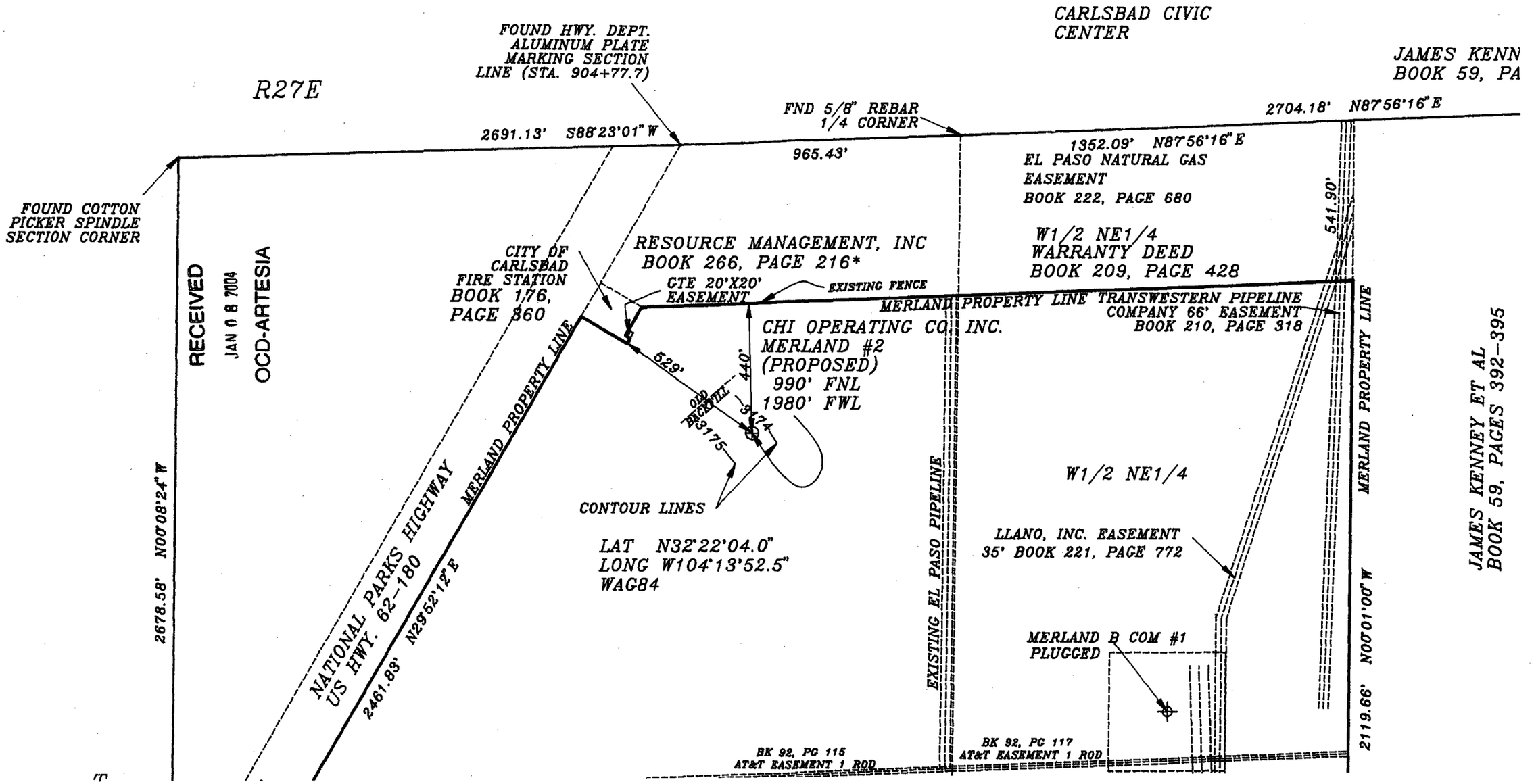
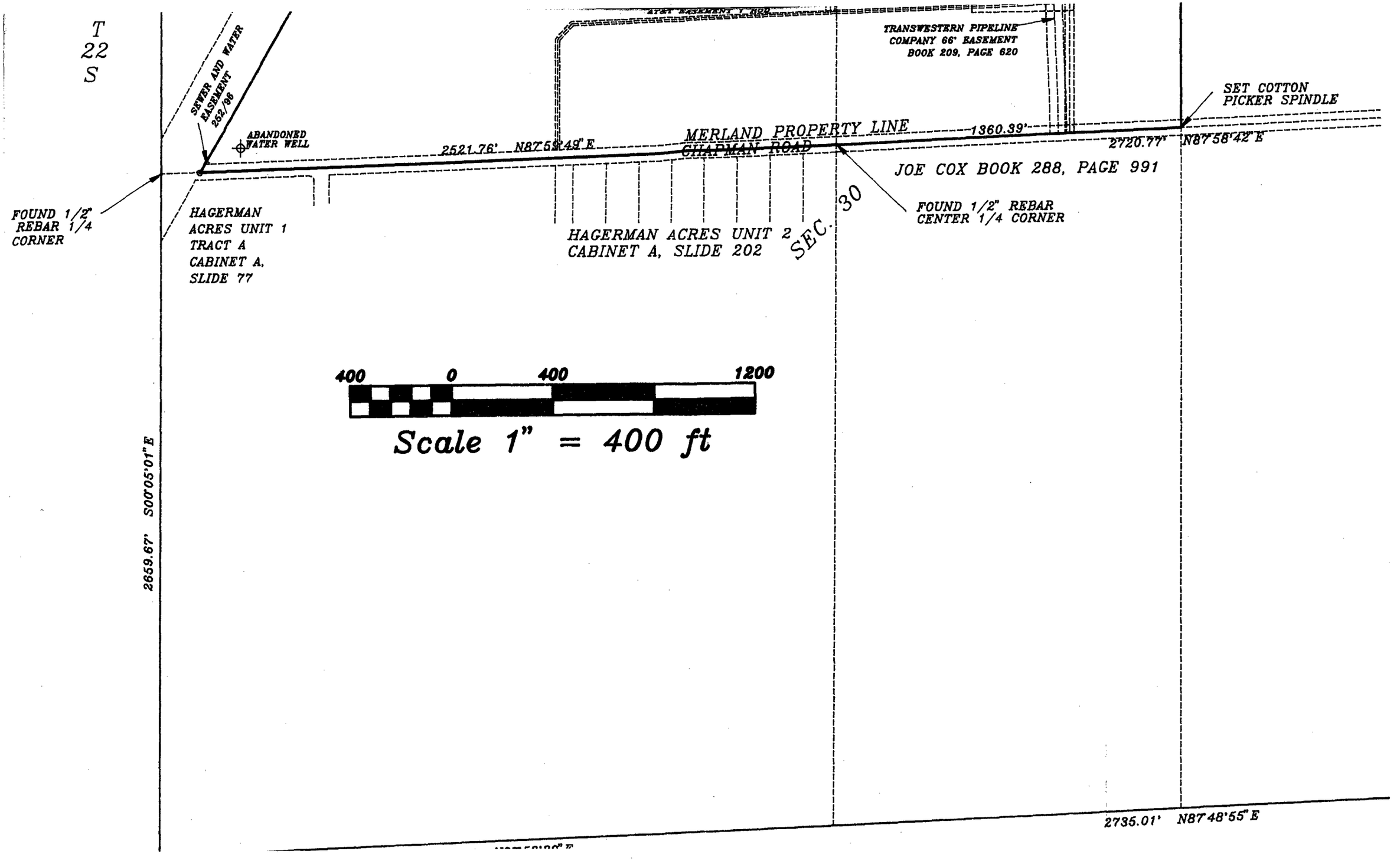
SKETCH TO ACCOMPANY APPLICATION FOR CITY OF CARLSBAD OIL/GAS WELL PERMIT




T
22
S
SEWER AND WATER
EASEMENT
252/96
ABANDONED
WATER WELL
AT&T EASEMENT 1 RRR
TRANSWESTERN PIPELINE
COMPANY 66' EASEMENT
BOOK 209, PAGE 620
SET COTTON
PICKER SPINDLE
2521.76' N87°59'49"E
MERLAND PROPERTY LINE
CHAPMAN ROAD
1360.39'
2720.77' N87°58'42"E
JOE COX BOOK 288, PAGE 991
FOUND 1/2"
REBAR 1/4
CORNER
HAGERMAN
ACRES UNIT 1
TRACT A
CABINET A,
SLIDE 77
HAGERMAN ACRES UNIT 2
CABINET A, SLIDE 202
SEC. 30
FOUND 1/2" REBAR
CENTER 1/4 CORNER
400 0 400 1200
Scale 1" = 400 ft
2659.67' S00°05'01"E
2735.01' N87°48'55"E

Chi Operating, Inc
Drilling Procedure Summary
Merland #2
Eddy County, New Mexico

ESTIMATED FORMATION TOPS:

Lamar Lime		3rd Sand	8375'
Delaware	2000'	Wolfcamp	8600'
Cherry Canyon	2665'	Strawn	10290'
Brushy Canyon	3800'	Atoka	10700'
1st B. Spring Carb	5260'	Morr.Clastics	11350'
1st Sand	6840'	Lower Morr.	11600'
2nd Sand	7180'	Mississippain	11750'

CASING/HOLE PROGRAM:

Hole Size	Casing	Depth	Cement	TOC
26"	20"	40'		Surface
17½"	13 3/8" –48.5/54.5#	±370'	as per procedure/ hole conditions	Surface
12¼"	9 5/8"-40/36# - J-55	±5260'	as per procedure/ hole conditions	Surface
8¾"	7"-26#-J-55 - N-80	±10,500'	**(Optional string in the event of over psi)**	
6 1/8"	**4½" -11.6# - N-80**	**±12,000'**	**(If 7" is necessary)**	
7 7/8"	5½" –20/17#-N-80	±12,000'	as deemed necessary	

MUD PROGRAM: (SUBJECT TO CHANGE PENDING HOLE CONDITIONS)

Depth	Mud Type	Weight	Vis	Filtrate
0-370'	Fresh Water/Spud	8.4 -	32-36	NC
370'-5,260'	Brine	10 -	29	NC
5,260'-8,550'	Fresh Water	8.4+	28	NC
8,550'- 10,650'	Brine/	10	29	NC
10,650'-11,300'	Brine/C. Brine(starch)	9.5 – 10+	32-34	12-15
11,300'-12,000'	(XCD-LSRV-40000) (XCD subject to change)	9.5 – 10+	42-45	<8

MUD LOGGING: (Will pick csg. point @ base of Delaware/top B.Spring) Mud logging will commence a two-man unit at a depth of 8500' feet.

OPEN HOLE LOGS:
Intermediate, pending mudlog (GR-CAL-CNL-LDT))(GR-CAL-DLL-MICRO).
Pending setting 7" string. (GR-CAL-CNL-LDT)(GR-CAL-DLL-MICRO)
TD to csg shoe. (GR-CAL-CNL-LDT)(GR-CAL-DLL-MICRO) & (Pos. FMI).
(GR-CNL) to Surface if not pulled in earlier sweep.

CORING: Rotary Sidewall: as dictated by logs.
POSSIBLE DST'S: As deemed necessary